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ABSTRACT

This paper reports on a study of the effectiveness of BlockAIDS, a computer-based AIDS (Acquired Immune Deficiency Syndrome) education game that communicates information from the U.S. Surgeon General's reports on AIDS to adolescents, preadolescents, and young adults. Game response protocols were obtained from 3,000 BlockAIDS players at the Houston Museum of Natural Science, Hall of Health Science. A random sample of 446 players responded to 4 questions about game impacts. The data showed that players gained significantly in knowledge about AIDS during game play. On average the games were played 5 to 6 minutes, during which time responses were made to about 15 questions on AIDS. As a result of playing BlockAIDS, about two-thirds of the players reported that they plan to avoid AIDS risks, know more about AIDS, and feel more comfortable talking about AIDS. Two statistical tables, one providing data about knowledge gains, the other analyzing participant responses, are appended. (Contains 8 references.) (KRN)

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ED 363 277

Effectiveness of a Computer-Based AIDS Education Game: BlockAIDS

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Abstract

BlockAIDS has been played by over 30,000 visitors to the Houston Museum of Natural Science each year. Players are often part of school classes visiting the museum and may have to stand in line to play the game or be otherwise rushed by circumstances. Data from game play at the museum show that BlockAIDS is fun to play, promotes knowledge about AIDS, and helps game players to plan to avoid AIDS risks.

BlockAIDS game players at the Museum:

- Gain significantly in knowlege about AIDS (26%) during game play.
- Play about 5 or 6 minutes on average, playing about 3 to 4 rounds. In that time they respond to about 15 questions about AIDS.
- As a result of playing BlockAIDs, about two-thirds of players report they:

  1. Plan to avoid AIDS risks
  2. Know more about AIDS.
  3. Feel more comfortable talking about AIDS.

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Effectiveness of a Computer-Based AIDS Education Game: BlockAIDS

In 1986, Surgeon General C. Everett Koop identified adolescents as an age group of critical importance in the fight against AIDS. Dr Koop (1986) foresaw that adolescents may not take the AIDS threat seriously and put themselves "at great risk". The booklet, AIDS: A Guide for Survival (1987) developed by the Harris County Medical Society (HCMS and the Houston Academy of Medicine (HAM) and used by Houston and Harris County schools put it this way, "An entire generation could be at risk" (p. 31.) Meanwhile, according to the Center for Disease Control (CDC) the under 25 age group STD rates hold steady at approximately two-thirds of all STD's nationally (Boyer & Kegeles, 1991; CDC, 1993). Traditional forms of health education, informational health pamphlets, medical campaigns, and so forth, tend not to appeal to adolescents. Consequently adolecents who are most at risk may not receive or understand the information. There is a need for additional AIDS information sources. As Dr. Eileen Starbranch, medical director of the Children's Unit, Belle Park Hospital in Houston has said, "Information about AIDS prevention must be presented on multiple occasions and in many formats by sources credible to young people."

BlockAIDS presents the information in the Surgeon General's reports in a format designed to grab and hold the attention, take the edge off the intensity of the subject, quickly introduce the critical information, and reduce "head-in-sand" behavior about AIDS. It's designed to be fun and exciting -- an educational game that can be played for a few minutes or for hours. AIDS facts are presented in brief easy-to-read chunks. The game encourages repeated review and promotes retention of the facts about AIDS.

The computer game format is an innovative one for AIDS education. But, such formats have been used effectively with other sensitive topics (e.g., the cancer game simulation - Killer T-Cell). A body of research has explored the use of educational games. That research indicates that learning games: (1) involve students more than traditional teaching methods, (2) motivate students and create greater interest, and (3) change attitudes (Engs, Barnes & Wantz, 1975; Henkens-Matzke & Abbott, 1990; Johnson, Hickson, Fetter and Reichenbach, 1987; Raines & Ellis, 1982).

BlockAIDS goals are to increase knowledge about AIDS and promote healthier AIDS-related attitudes and behavior. BlockAIDS is designed to break the ice, get adolescents talking and promote communication with knowledgeable adults. It is designed to be fun to play, motivate repeated play and promote retention.

Methodology

The BlockAIDS Program. BlockAIDS is a computer-based AIDS education game developed by the author to communicate information from the U.S. Surgeon General's reports on Acquired Immune Deficiency Syndrome to adolescents, preadolescents and young adults. BlockAIDS is based on a tic-tac-toe or "Hollywood Squares" like concept. It's a combination fast-action video game and quiz show, where players score points, learn about AIDS and complete rows of blocks by answering questions about AIDS. Correct answers block the "AIDS virus". If the player isn't quick enough, or gets the wrong answer, the AIDS virus zaps the block, and blocks completing the row. The object is to get the highest score while players learn that knowledge pays off in the fight against AIDS.

Subjects. Game response protocols were obtained from 3046 BlockAIDS game players at the Houston Museum of Natural Science, Hall of Health Science during the months of October, November and December of 1990 and January of 1991. Following game play a random sample of 446 of those players responded to 4 questions about game impacts. All data was obtained automatically by the computer as the game was being played or while the computer presented and obtained responses to postgame questions. Values of variables were automatically stored by the BlockAIDS software on hard disk during BlockAIDS game play. Players were often part of school classes visiting the museum and often stood in line to play the game or might be otherwise rushed by circumstances. Game players reflected a broad ethnic and age diversity from the Houston population with ages ranging from preadolescent to senior citizen.

Procedure. BlockAIDS was housed in an interactive kiosk similar in appearance to an animated videogame and used a trackball and button for input from game players. Visitors to the museum saw the BlockAIDS game display, were attracted to it and began game play by moving the trackball or pressing the button. Instructions briefly appeared on the screen and game play began. At the end of game play an additional set of demographic and attitudinal questions appeared to randomly selected game players. All player responses are stored on disk at the conclusion of each game.

The object of the game is to get the highest score and turn letters green in the BlockAIDS name. Letters turn green as players win rounds combatting the AIDS virus. Each successive round has an increasing number of colored blocks. Players score points, complete rows of blocks, and block the AIDS virus by avoiding the zapping action of the

AIDS virus and responding to questions about AIDS and gleaning information from hints that zoom out from the blocks.

Results and Discussion

BlockAIDS game players at the Houston Museum of Natural Science: (a) Gain significantly ($t = 25.65$, $p < .001$) an average of 26% over their initial knowledge of facts from the Surgeon General's report on AIDS during a typical game session as a result of teaching frames ("Hints") provided during game play (see Table 1). (b) Play about 5 or 6 minutes on average, playing about 3 to 4 rounds. In that time the player responds to approximately 15 questions about AIDS, correctly answering approximately 62% of AIDS questions on the first try without a hint, (c) Approximately two-thirds of the random sample of 446 players report that as a result of playing BlockAIDS they know more about AIDS, feel more comfortable talking about AIDS, plan to avoid AIDS risks, and that BlockAIDS was fun to play (see Table 2 and Figure 1). BlockAIDS has been played by over 30,000 museum visitors each year. Data from game play at the museum shows that BlockAIDS improves knowledge about AIDS facts from the surgeon general's reports, attitudes about talking about AIDS and reducing AIDS risks. BlockAIDS may contribute to reducing the spread of AIDS and HIV infection.

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Table 1

t-test Comparing Pre-Post Knowledge on AIDS Facts

Number of Cases	Mean	Standard Deviation	t-value and significance
3046	9.73	17.63	25.65 ($p < .001$)
3046	10.74	18.74	

Table 2

BlockAIDS Game Effects

BlockAIDS Game Effects	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
I plan to avoid AIDS risks (N = 443)	56.0%	12.6%	8.6%	7.4%	15.3%
I know more about AIDS (N = 442)	47.7%	15.6%	11.1%	7.5%	18.1%
I feel more comfortable talking about AIDS (N = 436)	46.1%	15.6%	11.9%	8.3%	18.1%
BlockAIDS was fun to play (N = 446)	48.4%	16.1%	9.6%	7.0%	18.8%

BlockAIDS Game Effects